DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 171, 172, 173, and 178

[Docket No. HM-181D, Notice No. 90-12]

RIN 2137-AB90

Performance-Oriented Packaging Standards; Additional Proposals for Flammable Solids, Oxidizers, and Organic Peroxides

AGENCY: Research and Special Programs Administration (RSPA), DOT.

ACTION: Supplemental notice of proposed rulemaking.

SUMMARY: RSPA proposes to amend the Hazardous Materials Regulations (HMR), 49 CFR Parts 171–180, with regard to the hazard classification, packaging, and hazard communication requirements applicable to flammable solids, oxidizers, and organic peroxides. The proposed changes are based on the United Nations Recommendations on the Transport of Dangerous Goods (UN Recommendations). The purpose of the action is to: Promote safety through better classification and packagings; simplify the HMR; promote flexibility and technological advances in packaging; and harmonize domestic regulations for flammable solids, oxidizers, and organic peroxides with those used internationally. The intended effects of this action are to enhance safety and facilities international commerce.

DATES: Comments must be received on or before August 20, 1990.

ADDRESSES: Address comments to the Dockets Unit, Research and Special Programs Administration, U.S. Department of Transportation, Washington, DC 20590–0001. Comments should identify the docket and be submitted, if possible, in five copies. If confirmation of receipt of comments is desired, include a self-addressed stamped postcard showing the docket number (*i.e.*, Docket HM–181D). The Dockets Unit is located in Room 8419 of the Nassif Building, 400 Seventh Street SW., Washington, DC 20590–0001. Telephone: (202) 366–5046. The public dockets may be reviewed between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: Charles Schultz, Office of Hazardous Materials Transportation, RSPA, 400 Seventh Street SW., Washington, DC, (202) 366–4545.

SUPPLEMENTARY INFORMATION: This supplemental notice of proposed rulemaking (SNPRM) revises the proposals set forth in Docket HM–181, Notice 87–4 (52 FR 16482 and 52 FR 42772) as they relate to flammable solids, oxidizers, and organic peroxides. These changes would incorporate classifications for certain hazardous materials that are consistent with the classification criteria found in the sixth edition of the U.N. Recommendations.

The supplementary information is organized under the following headings to assist the reader:

I. Background

On May 5, 1987, RSPA issued an NPRM entitled "Performance-Oriented Packaging Standards; Miscellaneous Proposals" (Docket HM–181; Notice 87–4; 52 FR 16482), proposing sweeping changes to the HMR, including the adoption of performance-oriented packaging standards and hazard classification criteria. Docket HM–181 was republished on November 6, 1987 (52 FR 42772) and contained corrections and supplemental proposals to the May 5, 1987 publication. Substantial background information is provided in those rulemakings and the reader is referred to them for greater detail. The following are the major considerations in support of those proposals as they relate to hazard classification: (1) The UN classification system conveys more directly the hazard characteristics of flammable solids, oxidizers, and organic peroxides. (2) Proper classification is necessary to ensure appropriate packaging, hazard communication, and handling, thereby enhancing transportation safety. This notice revises and supplements the proposals in Notice 87–4, based on the UN Recommendations, concerning Classes 4 and 5.

The proposed changes in this supplemental notice would address the following areas: (1) The definitions of materials in Classes 4 and 5 would be improved and expanded; (2) the methods and criteria for classifying a material into Class 4 or 5, and then assigning the material to a packing group, would be described; (3) shipping names within Division 5.2 (organic peroxides) would be revised to conform with the UN Recommendations; (4) packaging requirements would be added for self-reactive materials and revised for organic peroxides.

The definitions of Classes 4 and 5 would be clarified and ambiguous terms eliminated. In addition, classification and packing group assignment criteria would be incorporated in the regulatory text and test methods for Class 4 and Division 5.1 are included in two appendices.

There are two classification systems being introduced in this SNPRM in the form of appendices to 49 CFR part 173. Each system provides tests and criteria for the assignment of a material to a division within a class and to a packing group. The methods used to classify a material are based on the UN Recommendations, Chapters 11 and 14, for Division 5.1 solids and Class 4 materials, respectively.

An additional classification system is being introduced for Division 5.2 materials. Since publication of Notice 87–4 on November 6, 1987, the United Nations has introduced "generic types" of shipping descriptions. When a new organic peroxide is introduced into commerce, its transportation hazards are determined using standard tests. A competent authority, as defined in accordance with 49 CFR 171.8, then assigns the new organic peroxide to a generic type description based on the test results. By using this procedure, it is not necessary to go through the lengthy process by which the importing and exporting countries reach agreement on packaging requirements or the assignment of a UN identification number whenever a new organic peroxide product comes on the market. More importantly, because the classification system is based on hazard considerations, its implementation will help effect uniform safety standards. Included as part of these safety standards is a new method for specifying Division 5.2 packaging.

In Notice 87–4, we stated that not all hazardous materials are accommodated by the use of the general non-bulk packaging sections. Because of unique physical, chemical, or lethality problems, some materials require special packaging and handling. In that document, two methods were proposed to handle these problem materials. One would be to add special packaging provisions in the § 172.101 Hazardous Materials Table (HMT). The other method for dealing with these hazardous materials is to add a unique packaging section for a particular material when the general packaging provisions are not adequate to package the material safely. The general packaging tables have sufficient flexibility so that they could be modified to handle most materials; however, for certain materials, the

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number of special provisions needed is so large that their addition to the HMT would make it unwieldy. For these reasons, the addition of a separate packaging section is preferable. This SNPRM proposes two packaging sections, §§ 173.224 and 173.225, for self-reactive substances (Division 4.1) and organic peroxides (Division 5.2), respectively.

II. Related Rulemakings

Concurrent with this SNPRM, the following two advance notices of proposed rulemaking are withdrawn:

A. Docket HM-178

On May 7, 1981, RSPA published an advance notice of proposed rulemaking entitled, "Definition of Flammable Solid" (46 FR 25492) under Docket HM-178. RSPA recognized the shortcomings of the existing subjective classification system for flammable solids and proposed seven subgroupings for those materials. With a few exceptions, those seven subgroupings generally agree in principle with the definitions of Class 4 materials contained in the UN Recommendations and incorporated in this notice. The definitions omit wetted-explosives and self-reactive materials, however, and include some fermenting materials and elevated temperature materials. Elevated temperature materials have now been transferred into Docket HM-198A (54 FR 38930; September 21, 1989), but no work is currently planned on fermenting materials. In light of the duplication that would result from this supplemental notice and Docket HM-178, HM-178 is withdrawn. Hazard classification, hazard communication, and packaging standards for elevated temperature materials will still be given consideration under Docket HM-198A.

B. Docket HM-179

An advance notice of proposed rulemaking, under Docket HM-179, issued June 15, 1981 (46 FR 31294), entitled "Definition of Oxidizer", contained definitions, tests, and criteria for classifying oxidizers. The portion of that ANPRM which applied to solid oxidizers, has been incorporated into the UN Recommendations and is also contained in the proposed appendix F to part 173 in this notice. RSPA believes that rulemaking concerning liquid oxidizers should await adoption of criteria in the UN Recommendations. Therefore, Docket HM-179 is withdrawn.

III. Major Features

A. Class 4 Revisions

The further revisions to Class 4 would enhance the definitions for those materials proposed in § 173.124 (52 FR 42772) and explain, in an appendix (appendix E to part 173), the criteria by which a material is classified as Class 4. Although it was proposed to adopt Class 4 test criteria in Notice 87-4, these criteria were not included. This omission is corrected in this document.

Class 4 materials include flammable solids, spontaneously combustible materials, and materials that are dangerous when wet. The class includes some liquids in Divisions 4.2 and 4.3. Their classification scheme applies to a broad range of materials, including simple raw materials which may self-heat, and finished goods such as fusees (railway or highway). The proposed classification scheme would reflect that diversity. Test methods fall into two general categories: the first category uses fixed procedures of step-by-step protocol tests to evaluate specific characteristics of materials under conditions which may be experienced during transportation. The second category compares a new material with materials already in the division to determine its classification. The packing group is determined as part of the classification process. In order for a material to be classified within a division, some threshold of a specific hazard must be exceeded. The degree to which that hazard is assessed is determined by using packing groups. Packing Group III indicates minor danger; Packing Group II indicates moderate danger, while Packing Group I indicates great danger. In many cases, the packing group is determined using quantitative data derived from specific tests. Where quantitative tests have not been developed, packing group assignments are subjective and ultimately based upon the transportation experience with these or similar materials.

Certain self-reactive materials require special packaging and transport conditions. Their shipping requirements are not easily accommodated in the HMT and this notice would provide a new section (§ 173.224) which details packaging and temperature control requirements for self-reactive materials.

B. Class 5 Revisions

This notice proposes extensive revisions to the proposals made in Notice 87-4. The definitions for Divisions 5.1 and 5.2 in proposed §§ 173.127 and 173.128, respectively, would be revised. Test methods for classification and packing group criteria for Division 5.1 are proposed in a new appendix F to part 173. This system entails a graduated comparison to materials with known characteristics, of the potential of a specific material to accelerate combustion.

Revisions to Division 5.2 include 20 new generic shipping descriptions in the § 172.101 Table, a classification system for assigning those descriptions, and a packaging system which recognizes the unique characteristics of organic peroxides. The 20 new generic entries for organic peroxides would replace 156 existing entries in the § 172.101 Table. Generic types A through G would be defined in § 173.128, based on classification criteria incorporated by reference from the UN Recommendations, Tests and Criteria, Part III. The classification system reflects the hazard characteristics of organic peroxides as packaged for shipment and requires that the temperature of the package be controlled, when appropriate. Criteria for determining when temperature controls are appropriate are applicable to both self-reactive materials in Division 4.1 and organic peroxides in Division 5.2. These criteria appear in proposed § 173.223.

A listing of technical names for organic peroxides would appear in a new Organic Peroxides Table in proposed § 173.225, and would be used to determine the applicable generic shipping name, packaging, and other requirements for known organic peroxides. Materials not identified by technical name, or formulations of identified materials, would be subject to approval by the Director, Office of Hazardous Materials Transportation (OHMT), prior to shipment, except for certain samples.

A packaging system based on the UN Recommendations is included in proposed § 173.225 and replaces that proposed in Notice 87-4. It is proposed that certain organic peroxides which exhibit explosive properties, specifically organic peroxides Type B, would require an EXPLOSIVE subsidiary label. Bulk packaging requirements are proposed for certain liquid Type F organic peroxides.

IV. Review by Sections

Note: Unless otherwise noted, this section-by-section review is based on the recodification proposed in Notice 87-4 (52 FR 42772; November 6, 1987).

Section 171.7

This section is being amended to incorporate citations of the United